

8/035,024

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5-7-93
Patent
D. Shonle



1993 IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

DAVID A. EVANS

Serial No.:

Filed:

For: ELECTROLYTIC CAPACITOR

INFORMATION DISCLOSURE STATEMENT

Honorable Commissioner of Patents and Trademarks
Washington, D. C. 20231

Dear Sir:

Pursuant to the provisions of 37 C.F.R. §1.56 and 37 C.F.R. §1.97, the attention of the Examiner is directed to the following documents, a copy of each of which is attached.

U. S. Patent 3,632,498 describes methods of forming metal oxide coatings on electrodes for use in commercial electrolysis cells. Attention is particularly directed to Examples III, VII, XV, and XIX.

U. S. Patent 4,408,259 describes an electrochemical double layer capacitor enclosed within and between laminated sheets of heat-fusible resins.

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U. S. Patent 4,766,522 describes the formation of an iridium oxide coating on electrodes from solutions of iridium chloride dissolved in isopropyl alcohol. The electrodes are used in pseudocapacitive capacitors. Attention is directed to column 6.

U. S. Patents 4,780,797, 4,942,500, and 5,043,849 having common inventorship all describe tantalum electrolytic capacitors in which platinum family metals are deposited on tantalum to improve the energy storage density of the electrolytic capacitors.

U. S. Patent 5,098,485 describes a method of making an electrical contact to a metal on which an insulating film is present. The patent is referred to on page 13 of the referenced application.

European Patent Application 0 078 404 describes various pseudocapacitive capacitors and other electrical energy storage elements.

"Transition Metal Oxide Electrochemical Capacitors" describes electrochemical capacitors, i.e., pseudocapacitors. Attention is directed to the metal oxide films in those capacitors as compared to earlier known carbon double layer capacitors.

"Electrical Response Of Electrochemical Capacitors Based On High Surface Area Ruthenium Oxide Electrodes" also discusses charge storage mechanisms in ruthenium oxide electrochemical capacitors and the characteristics of ruthenium oxide coatings employed in such capacitors. Attention is directed to Figure 9.

In the attached portion of an invited chapter entitled "Electrochemical Capacitors" by Raistrick, electrochemical capacitors particularly employing ruthenium oxide films are generally discussed.

The article "Electrochemical Capacitors" by McHardy generally describes double layer capacitors particularly employing iridium oxide coatings.

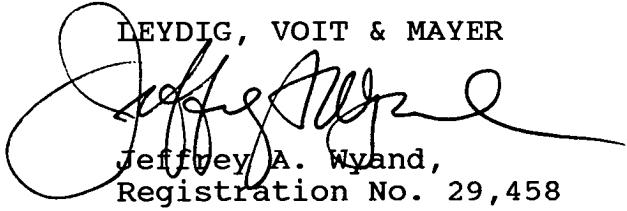
"Counterelectrode Preparation For An Improved Tantalum Electrolytic Capacitor Meeting The Requirements Of MIL-C-39006/26,27" appears to contain the same disclosure as U. S. Patent 4,780,797.

"High-Rate, Solid-State Electrochemical Capacitors" describes a bipolar capacitor cell design for double layer, i.e., electrochemical, capacitors.

A favorable Action on the merits is solicited.

Respectfully submitted,

LEYDIG, VOIT & MAYER


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